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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,575	09/30/2003	Leonard J. Olmer	Bever 2-3-16-20/075903-8	9967
47396	7590	09/18/2007	EXAMINER	
HITT GAINES, PC LSI Corporation PO BOX 832570 RICHARDSON, TX 75083			HECKERT, JASON MARK	
			ART UNIT	PAPER NUMBER
			1746	
			NOTIFICATION DATE	DELIVERY MODE
			09/18/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket@hittgaines.com

<p align="center"><b>Office Action Summary</b></p>	<p><b>Application No.</b></p> <p align="center">10/675,575</p>	<p><b>Applicant(s)</b></p> <p align="center">OLMER ET AL.</p>	
	<p><b>Examiner</b></p> <p align="center">Jason Heckert</p>	<p><b>Art Unit</b></p> <p align="center">1746</p>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 July 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 9-12, 14-20, 22, 24-26, 28 and 30-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9-12, 14-20, 22, 24-26, 28, 30-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| <p>1) <input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br/> Paper No(s)/Mail Date _____.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)<br/> Paper No(s)/Mail Date. _____.</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application</p> <p>6) <input type="checkbox"/> Other: _____.</p> |
|--|---|

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 7/6/07 have been fully considered but they are not persuasive. The applicant has included the limitation of a pre-heating step in claim 1, 19, and new claim 35. Examiner does not find that this reads over the previously presented prior art. The applicant has neither claimed the sequence nor environment in which these steps take place. SC1 is known to include elevated temperatures above room temperature. Pomarede also discloses a hydrogen bake step at elevated temperatures. Therefore, the substrate is heated before gas is introduced. Furthermore, when gas is initially introduced, the substrate will inevitably rise in temperature, also reading on the claimed pre-heating step. Finally, no mention of "pre-heating" is made in the specification, and paragraph 0019 is a figure reference.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 1-5, 7, 9-12, 14-20, 22, 24-26, 28, 30-35 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant points to paragraph 0019 of the specification for support language. This paragraph discloses

"FIG. 1 is a cross-sectional view of an HBT to which the teachings of the present invention can be applied." No mention is made of pre-heating. Furthermore, examiner could find no mention of "pre-heating" in the specification.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5, 10-12, 14, 16-20, 25, 26, 28, 30, 33-35 rejected under 35 U.S.C. 102(b) as being anticipated by Pomarede et al. (Pomarede). Pomarede discloses a method for treating a substrate prior to deposition comprising the following steps (pp 5-9). A substrate containing an epitaxial silicon layer is subjected to a cleaning in an SC1 [RCA process]/HF bath (paragraph 0061) or an in situ hydrogen bake. This cleaning is known to leave a hydrogen-terminated surface. Therefore, the pressure that the cleaning takes place at is the same pressure at which the hydrogen formation takes place. Pomarede then discloses a treatment 110 in which a source gas, of which nitrogen fluoride is disclosed (paragraph 0065), is introduced at a temperature of 75 degrees Celsius to 700 degrees Celsius with 500 degrees Celsius being a preferred temperature. SC1 is known to include elevated temperatures above room temperature. Pomarede also discloses a hydrogen bake step at elevated temperatures. Therefore, the substrate is heated before gas is introduced reading on "pre-heating". A polysilicon layer (paragraph 0085) is deposited 125 at similar temperatures (paragraph 0094). The

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cleaning, introduction of gas, and deposition all occur in situ at relatively constant pressures. Pomarede discloses that this method can be used with arsenic-doped polysilicon deposition (paragraph 0102).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Pomarede in view of Yates. Yates disclose a method of reducing water spotting and oxide growth on a semiconductor structure. The reference discloses drying the substrate with alcohol as claimed. The reference discloses that the chemical treatment, rinsing, and drying are carried out in a single vessel. It would have been obvious for one skilled in the art to use the drying step taught by Yates in the process taught by Pomarede to improve the cleaning process by removing any trace of chemical cleaning solution on the surface of the substrate.

8. Claim 7, 9, 15, 22, 24, 31-32 rejected under 35 U.S.C. 103(a) as being unpatentable over Pomarede. Pomarede discloses temperatures within the claimed range, but does not disclose flow rates. Pomarede does disclose that for the given temperature, pressure, reaction times, and reaction concentrations can be adjusted to achieve the desired surface conditioning (0065). Examiner feels that flow rate and duration fall under the obvious modifications Pomarede alludes to. Furthermore, it is

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well settled that determination of optimum values of cause effective variables such as flow rate is within the skill of one practicing the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). It would have been obvious at the time of the invention to modify the flow rate, concentration, or exposure time to achieve the desired breaking of surface bonds without significant bulk modification in order to obtain the desired conditioning.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

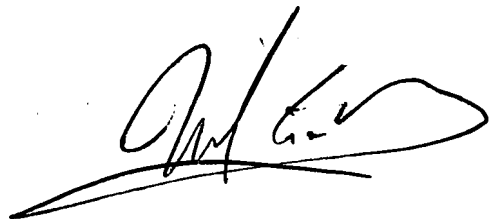
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Heckert whose telephone number is (571) 272-2702. The examiner can normally be reached on Mon. to Friday, 8:00 - 5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571)272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMH

A handwritten signature in black ink, appearing to read 'Michael Barr', with a large, sweeping underline.

**MICHAEL BARR**  
**SUPERVISORY PATENT EXAMINER**